PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Chang et al.   (SANDP035)   Conf. No. 8971

Serial No. 10/676,652   Group Art Unit: 2186

Filed: October 1, 2003   Examiner: Peers

For: Hybrid Mapping Implementation Within a Non-Volatile Memory System

REQUEST FOR RECONSIDERATION UNDER RULE 116

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Dear Sir:

This paper is presented in response to the Office Action mailed on May 24, 2006, in which the claims in this application were finally rejected.

Reconsideration of this application is respectfully requested.

Claims 1, 2, and 4 through 19 remain in this case. No claim is amended. Claims 3 and 20 through 42 were previously canceled.

All claims stand finally rejected under §103 as unpatentable over the Wells reference[1] in view of the Miki et al. reference[2].

---

[1] U.S. Patent No. 5,341,339, issued August 23, 1994 to Wells.
[2] U.S. Patent No. 5,113,512, issued May 12, 1992 to Miki et al.

Following Applicants' previous response regarding claims 1, 8, and 13, the Examiner now accepts that the Wells reference fails to teach the identifying of a logical block according to a criterion comprising contents of the logical block being associated with a number of groups of logical pages fewer than a first limit.[3] The Examiner now asserts that the Miki et al. reference teaches this criterion,[4] and that it would have been obvious to combine these teachings of the Miki et al. reference with those of the Wells reference "to make an address translation table at a manageable size".[5] The claims were rejected accordingly.

Applicants respectfully traverse the final rejection of claims 1, 2, and 4 through 19, on the grounds that the Miki et al. reference does not teach what the Examiner says it teaches, and that therefore the rejection is in error.

For convenience, the passages of the Miki et al. reference cited by the Examiner as teaching the claimed criterion are:

> In a more preferred embodiment, the address translation means comprises an address translation table in which logical block addresses are correlated to physical sectors by the unit of a logical page combining a fixed number of logical blocks, and the judgement for whether the sector size change is to be conducted by the unit of a logical page or not is done on the basis of said address translation table.[6]

and

> In a more preferred embodiment, the address translation means comprises an address translation table in which logical block addresses are correlated to physical blocks by the unit of a logical page combining a fixed number of logical blocks, and the judgement for whether the block size change is to be conducted by the unit of a logical page or not is done on the basis of said address translation table.[7]

---

[3] Office Action of May 24, 2006, pages 2 and 3.
[4] *Id., citing* Miki et al., *supra,* at column 3, lines 11 through 18 and 51 through 58.
[5] *Id.,* page 3.
[6] Miki et al., *supra,* column 3, lines 11 through 18.
[7] Miki et al., *supra,* column 3, lines 51 through 58.

These passages appear to teach that an address translation table correlates logical block addresses to physical blocks, using a logical page that combines a number of logical blocks, and that some sort of judgment is made to determine whether a sector size or block size can be changed, based on this address translation table. To determine whether these teachings correspond to the criterion of the claims in this application, it is instructive to look deeper into the reference to determine just what this "judgement" is, and how it is made according to the Miki et al. reference.

In the system of the Miki et al. reference, a distinction is made between logical blocks that store a "special" directory file ("DF") and those that store an "ordinary" DF.[8] The operation of this system involves decisions to determine whether a logical block number ("LBN") refers to a special DF or an ordinary DF.[9] According to the reference, special DFs may be stored in physical sectors of the disk that have adjustable sizes, while ordinary DFs are stored in physical sectors for which the size cannot be adjusted.[10] The "judgement", to which the cited locations of the Miki et al. reference refer, is the determination by the address translation table of whether a particular logical block (having an LBN) is special or ordinary.[11] The use of "a logical page in which a fixed number of logical blocks are bundled" to make this "judgement" refers simply to defining a sequence of logical block numbers (LBNs) that are reserved for special DFs, and a sequence of LBNs that are reserved for ordinary or normal DFs.[12] The address translation table of the Miki et al. reference can thus be kept to a manageable size.[13]

Considering these teachings of the Miki et al. reference relative to claim 1, Applicants submit that these teachings do not meet the recited criterion, and therefore disagree with the Examiner's interpretation of the reference in this regard. Claim 1 recites that each of its plurality of mapped logical blocks include a plurality of logical pages arranged in groups, and requires that the at least one criterion for identifying a first logical block comprises the contents of the

---

[8] Miki et al., *supra,* column 5, lines 35 through 51; column 6, lines 18 through 24.
[9] Miki et al., *supra,* column 5, line 57 through column 6, line 1.
[10] Miki et al., *supra,* column 5, lines 35 through 51; column 6, lines 21 through 36.
[11] Miki et al., *supra,* column 3, lines 11 through 18 and 51 through 58.
[12] Miki et al., *supra,* column 6, line 53 through column 7, line 9.
[13] Miki et al., *supra,* column 6, line 53 through column 7, line 42.

first logical block being associated with a number of groups of logical pages fewer than a first limit. There is no first limit disclosed by the Miki et al. reference. Instead, the Miki et al. reference merely sets of ranges of LBNs in its address translation table, in lieu of tabulating each and every LBN, in order to determine whether a logical block is a special DF or an ordinary DF. Nor does the Miki et al. reference disclose any determination of whether the contents of a logical block are associated with a number of groups of logical pages fewer than the first limit. The Miki et al. reference cannot disclose such a determination, because its logical blocks are not disclosed as including a plurality of pages arranged in groups; rather, the Miki et al. reference teaches that its logical pages are bundles of logical blocks.

Accordingly, Applicants submit that the Miki et al. reference does not teach what the Examiner says that it teaches, and does not teach the at least one criterion required by claim 1 and its dependent claims. The combination of the Miki et al. reference with the Wells reference, even if such combination is suggested by the prior art,[14] therefore falls short of the requirements of claim 1, and its dependent claims. Applicants therefore respectfully submit that the final rejection of claim 1 and its dependent claims, under §103, is in error, and should be withdrawn.

Claim 8 requires means for identifying a first logical block that meets at least one criterion, by having its contents associated with a number of groups of logical pages fewer than a first limit, where each of a plurality of logical blocks includes a plurality of logical pages arranged in groups. Similarly as asserted relative to claim 1, Applicants submit that the combination of the Miki et al. reference with the Wells reference, even if suggested, would fall short of the requirements of claim 8 and its dependent claims because those teachings would lack this identifying means.

Again, the Miki et al. reference discloses no first limit as claimed, but instead discloses only ranges of LBNs in an address translation table, from which the table determines whether a logical block is a special DF or an ordinary DF. And the Miki et al. reference fails to disclose a determination of whether the contents of a logical block are associated with a number of groups

---

[14] Applicants do not admit that such suggestion is present in the prior art.

of logical pages fewer than the first limit, considering that it does not disclose that its logical blocks include a plurality of pages arranged in groups, but instead discloses that its logical pages are each bundles of logical blocks.

Accordingly, Applicants submit that the Miki et al. reference does not teach what the Examiner says that it teaches, and does not teach the identifying means of claim 8 and its dependent claims. Even if one were to combine the teachings of the Miki et al. reference with the Wells reference, that combination would still lack at least one element of claim 8 and its dependent claims. Applicants therefore respectfully traverse the final rejection of claim 8 and its dependent claims because the rejection is in error. Withdrawal of the rejection is requested.

Independent claim 13 is directed to a memory system including a non-volatile memory, and including code devices that identify a first logical block meeting at least one criterion by having its contents associated with a number of groups of logical pages fewer than a first limit; this logical block is one of a plurality of logical blocks that each include a plurality of logical pages arranged in groups. Similarly as asserted relative to claims 1 and 8, Applicants submit that the combination of the Miki et al. reference with the Wells reference necessarily falls short of the requirements of claim 13 and its dependent claims, because the resulting teachings would still lack the code devices that identify a first logical block, as required by claim 13.

As previously argued, the Miki et al. reference does not disclose the first limit of claim 13, instead teaching ranges of LBNs in an address translation table that determines whether a logical block is a special DF or an ordinary DF. Nor does the Miki et al. reference disclose a determination of whether the contents of a logical block are associated with a number of groups of logical pages fewer than a first limit. A logical page, according to the Miki et al. reference, is a bundle of logical blocks, rather than a constituent of a logical block as recited in claim 13.

Accordingly, Applicants submit that the Miki et al. reference does not teach what the Examiner says that it teaches, and in fact fails to disclose the code devices that identify of claim 13 and its dependent claims. Therefore, the combination of the teachings of the Miki et al. reference with those of the Wells reference, even if such combination were suggested by the

prior art, would fall short of the requirements of claim 13 and its dependent claims. Applicants therefore respectfully traverse the final rejection of claim 13 and its dependent claims because the rejection is in error, and request withdrawal of the final rejection.

For these reasons, Applicants respectfully submit that all claims in this case remain in condition for allowance. Reconsideration of this application is therefore respectfully requested.

Respectfully submitted,

/Rodney M. Anderson/

Rodney M. Anderson

Registry No. 31,939

Attorney for Applicants

Anderson, Levine & Lintel, L.L.P.

14785 Preston Road, Suite 650

Dallas, Texas 75254

(972) 664-9554